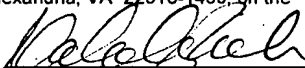


Rec'd PCT/PTO 15 AUG 2005

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as First Class Mail, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below.

Dated: August 10, 2005

Signature:


(Nabeela R. McMillian)

Docket No.: 23004/40746
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Daniel Tillett et al.

Application No.: 10/517,698

Confirmation No.: 8618

Filed: December 13, 2004

Art Unit: Not Yet Assigned

For: DNA Amplification and Sequencing in
Collapsible Emulsions

Examiner: Not Yet Assigned

STATEMENT PURSUANT TO 37 CFR 1.821(f)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450


Dear Sir:

I hereby state that the content of the paper and computer-readable copies of the Sequence Listing, submitted herewith in accordance with 37 C.F.R. § 1.821, are the same.

Dated: August 10, 2005

Respectfully submitted,

By



Nabeela R. McMillian

Registration No.: 43,363

MARSHALL, GERSTEIN & BORUN LLP

233 S. Wacker Drive, Suite 6300

Sears Tower

Chicago, Illinois 60606-6357

(312) 474-6300

Attorney for Applicant

SEQUENCE LISTING

<110> Tillet et al.

<120> DNA AMPLIFICATION AND SEQUENCING IN COLLAPSIBLE EMULSIONS

<130> 23004/40746

<140> US 10/517,698

<141> 2004-12-13

<150> PCT/AU03/00746

<151> 2003-06-13

<150> AU PS 2981

<151> 2002-06-13

<160> 11

<170> PatentIn version 3.0

<210> 1

<211> 4245

<212> DNA

<213> Artificial sequence

<220>

<223> Plasmid pCR-Blunt II-TOPO

<400> 1

agcgcccaat acgcaaaccg cctctccccg cgcgttgcc gattcattaa tgcagctggc	60
acgacaggtt tcccgactgg aaagcgggca gtgagcgcaa cgcaattaat gtgagttagc	120
tcactcatta ggcaccccag gctttacact ttatgcttcc ggctcgtatg ttgtgtggaa	180
ttgtgagcgg ataacaattt cacacaggaa acagctatga ccatgattac gccaaagctat	240
ttaggtgaca ctatagaata ctcaagctat gcatcaagct tggtagcgag ctcggtatcca	300
ctagtaacgg ccgccagtgt gctggaattc gccctcatat gagtaaagga gaagaacttt	360
tcactggagt tgtcccaatt cttgttgaat tagatggcga tgttaatggg caaaaattct	420
ctgtcagtgg agaggggtgaa ggtgatgcaa catacggaaa acttaccctt aaatttattt	480
gcactactgg gaagctacct gttccatggc caacacttgt cactactttc gcgtatggtc	540
ttcaatgctt tgcgagatac ccagatcata tgaaacagca tgactttttc aagagtgcc	600
tgcccgaagg ttatgtacag gaaagaacta tattttacaa agatgacggg aactacaaga	660
cacgtgctga agtcaagttt gaaggtgata cccttggtta tagaatcgag ttaaaaggta	720
ttgattttta agaagatgga aacattcttg gacacaaaat ggaatacaac tataactcac	780
ataatgtata catcatggca gacaaaccaa agaatggaat caaagttaac ttcaaaatta	840
gacacaacat taaagatgga agcgttcaat tagcagacca ttatcaacaa aatactccaa	900
ttggcgatgg ccctgtcctt ttaccagaca accattacct gtccacacaa tctgcccttt	960
ccaaagatcc caacgaaaag agagatcaca tgatccttct tgagtttgta acagctgctg	1020

ggattacaca	tggcatggat	gaactataca	aataaggatc	ctaagggcga	attctgcaga	1080
tatccatcac	actggcggcc	gctcgagcat	gcactagag	ggcccaattc	gccctatagt	1140
gagtcgtatt	acaattcact	ggcgcgtgtt	ttacaacgtc	gtgactggga	aaaccctggc	1200
gttaccaca	ttaatcgctt	tgcagcacat	ccccctttcg	ccagctggcg	taatagcgaa	1260
gaggcccgca	ccgatcgccc	ttcccaacag	ttgcgcagcc	tatacgtagc	gcagtttaag	1320
gtttacacct	ataaaagaga	gagccgttat	cgtctgtttg	tggatgtaca	gagtgatatt	1380
attgacacgc	cggggcgacg	gatggtgatc	cccctggcca	gtgcacgtct	gctgtcagat	1440
aaagtctccc	gtgaacttta	cccgggtgtg	catatcgggg	atgaaagctg	gcgcatgatg	1500
accaccgata	tggccagtgt	gccggtctcc	gttatcgggg	aagaagtggc	tgatctcagc	1560
caccgcgaaa	atgacatcaa	aaacgccatt	aacctgatgt	tctggggaat	ataaatgtca	1620
ggcatgagat	tatcaaaaag	gatcttcacc	tagatccttt	tcacgtagaa	agccagtccg	1680
cagaaacggt	gctgaccccc	gatgaatgtc	agctactggg	ctatctggac	aagggaaaac	1740
gcaagcgcaa	agagaaagca	ggtagcttgc	agtgggctta	catggcgata	gctagactgg	1800
gcgggttttat	ggacagcaag	cgaaccggaa	ttgccagctg	gggcgccttc	tggttaagggtt	1860
gggaagccct	gcaaagtaaa	ctggatggct	ttctcgccgc	caaggatctg	atggcgagg	1920
ggatcaagct	ctgatcaaga	gacaggatga	ggatcgtttc	gcatgattga	acaagatgga	1980
ttgcacgcag	gttctccggc	cgtttgggtg	gagaggctat	tcggctatga	ctgggcacaa	2040
cagacaatcg	gctgctctga	tgcgcgcgtg	ttccggctgt	cagcgcaggg	gcgcccgggtt	2100
ctttttgtca	agaccgacct	gtccggtgcc	ctgaatgaac	tgcaagacga	ggcagcgcg	2160
ctatcgtagc	tggccacgac	gggcgttcc	tgcgcagctg	tgctcgacgt	tgtcactgaa	2220
gcgggaaggg	actggtctgt	attgggcgaa	gtgccggggc	aggatctcct	gtcatctcac	2280
cttgctcctg	ccgagaaagt	atccatcatg	gctgatgcaa	tgcggcggct	gcatacgctt	2340
gatccggcta	cctgccatt	cgaccaccaa	gcgaaacatc	gcatcgagcg	agcacgtact	2400
cggatggaag	ccggtcttgt	cgatcaggat	gatctggacg	aagagcatca	ggggctcgcg	2460
ccagccgaac	tgttcgccag	gctcaaggcg	agcatgccc	acggcgagga	tctcgtcgtg	2520
acccatggcg	atgcttctt	gccgaatatc	atggtggaaa	atggccgctt	ttctggattc	2580
atcgactgtg	gccggctggg	tgtggcggac	cgtatcagg	acatagcgtt	ggctaccgct	2640
gatattgctg	aagagcttgg	cggcgaatgg	gctgaccgct	tcctcgtgct	ttacggtatc	2700
gccgctccc	attcgacg	catcgcttc	tatcgcttc	ttgacgagtt	cttctgaatt	2760
attaacgctt	acaatttct	gatgcggtat	tttctcctta	cgcactctgtg	cggatatttca	2820
caccgcatac	aggtggcaact	tttcggggaa	atgtgcgcgg	aaccctatt	tgtttatttt	2880
tctaaataca	ttcaaatatg	tatccgctca	tgagacaata	accctgataa	atgcttcaat	2940

aatagcacgt gaggagggcc accatggcca agttgaccag tgccgttccg gtgctcaccg	3000
cgcgcgacgt cgccggagcg gtcgagttct ggaccgaccg gctcgggttc tcccgggact	3060
tcgtggagga cgacttcgcc ggtgtggtcc gggacgacgt gaccctgttc atcagcgcg	3120
tccaggacca ggtggtgccg gacaacaccc tggcctgggt gtgggtgcgc ggctggacg	3180
agctgtacgc cgagtggtcg gaggtcgtgt ccacgaactt ccgggacgcc tccgggccgg	3240
ccatgaccga gatcggcgag cagccgtggg ggcgggagtt cgccctgcgc gacccggccg	3300
gcaactgcgt gcacttcgtg gccgaggagc aggactgaca cgtgctaaaa cttcatTTTT	3360
aatttaaaag gatctaggtg aagatccttt ttgataatct catgaccaa atcccttaac	3420
gtgagttttt gttccactga gcgtcagacc ccgtagaaaa gatcaaagga tcttcttgag	3480
atcctTTTTt tctgcgcgta atctgctgct tgcaaacaaa aaaaccaccg ctaccagcgg	3540
tggtttgttt gccggatcaa gagctaccaa ctctttttcc gaaggtaact ggcttcagca	3600
gagcgcagat accaaatact gtccttctag tgtagccgta gttaggccac cacttcaaga	3660
actctgtagc accgcctaca tacctcgtc tgctaatact gttaccagt gctgctgcca	3720
gtggcgataa gtcgtgtctt accgggttgg actcaagacg atagttaccg gataaggcgc	3780
agcggtcggg ctgaacgggg ggttcgtgca cacagcccag cttggagcga acgacctaca	3840
ccgaactgag atacctacag cgtgagctat gagaaagcgc cacgcttccc gaaggagaa	3900
aggcggacag gtatccggtg agcggcaggg tcggaacagg agagcgacg agggagcttc	3960
cagggggaaa cgcttggtat ctttatagtc ctgtcgggtt tcgccacctc tgacttgagc	4020
gtcgattttt gtgatgctcg tcaggggggc ggagcctatg gaaaaacgcc agcaacgcgg	4080
cctttttacg gttcctgggc ttttctgggc cttttgctca catgttcttt cctgcgttat	4140
ccctgatctc tgtggataac cgtattaccg cttttgagt agctgatacc gctcgccgca	4200
gccgaacgac cgagcgcagc gagtcaagtga gcgaggaagc ggaag	4245

<210> 2
 <211> 3197
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Plasmid pGEM-3Zf (+)

<400> 2	
ggggaattc gagtcggta cccggggatc ctctagagtc gacctgcagg catgcaagct	60
tgagtattct atagtgtcac ctaaatagct tggcgtaatc atggtcatag ctgtttcctg	120
tgtgaaattg ttatccgtc acaattccac acaacatacg agccggaagc ataaagtgtg	180
aagcctgggg tgccaatga gtgagctaac tcacattaat tgcgttgccg tcaactgccg	240
ctttccagtc gggaaacctg tcgtgccagc tgcattaatg aatcggccaa cgcgcgggga	300

gaggcggttt gcgtattggg cgctcttccg ctctctcgct cactgactcg ctgcgctcgg	360
tcgttcgggt gcggcgagcg gtatcagctc actcaaaggc ggtaatacgg ttatccacag	420
aatcagggga taacgcagga aagaacatgt gagcaaaagg ccagcaaaag gccaggaacc	480
gtaaaaaggc cgcgttgctg gcgtttttcc ataggctccg cccccctgac gagcatcaca	540
aaaatcgacg ctcaagtcag aggtggcgaa acccgacagg actataaaga taccaggcgt	600
ttccccctgg aagctccctc gtgcgctctc ctgttccgac cctgccgctt accggatacc	660
tgtccgcctt tctcccttcg ggaagcgtgg cgctttctca tagctcacgc tgtaggtatc	720
tcagttcggg ttaggtcggt cgctccaagc tgggctgtgt gcacgaaccc cccgttcagc	780
ccgaccgctg cgccttatcc ggtaactatc gtcttgagtc caaccggta agacacgact	840
tatcgccact ggcagcagcc actggtaaca ggattagcag agcgaggatg gtaggcgggtg	900
ctacagagtt cttgaagtgg tggcctaact acggctacac tagaagaaca gtatttggtg	960
tctgcgctct gctgaagcca gttaccttcg gaaaaagagt tggtagctct tgatccggca	1020
aacaaaccac cgctggtagc ggtgggtttt ttgtttgcaa gcagcagatt acgcgcagaa	1080
aaaaaggatc tcaagaagat cctttgatct tttctacggg gtctgacgct cagtggaaacg	1140
aaaactcacg ttaagggatt ttggtcatga gattatcaaa aaggatcttc acctagatcc	1200
ttttaaatga aaaatgaagt tttaaatcaa tctaaagtat atatgagtaa acttggtctg	1260
acagttacca atgcttaatc agtgaggcac ctatctcagc gatctgtcta tttcgttcat	1320
ccatagttgc ctgactcccc gtcgtgtaga taactacgat acgggagggc ttaccatctg	1380
gccccagtgc tgcaatgata ccgcgagacc cacgctcacc ggctccagat ttatcagcaa	1440
taaaccagcc agccggaagg gccgagcgca gaagtggctc tgcaacttta tccgcctcca	1500
tccagtctat taattgttgc cgggaagcta gagtaagtag ttcgccagtt aatagtttgc	1560
gcaacgttgt tgccattgct acaggcatcg tgggtgcacg ctcgctgctt ggtatggctt	1620
cattcagctc cggttcccaa cgatcaaggc gagttacatg atcccccatg ttgtgcaaaa	1680
aagcggttag ctcttcgggt cctccgatcg ttgtcagaag taagttggcc gcagtgttat	1740
cactcatggg tatggcagca ctgcataatt ctcttactgt catgccatcc gtaagatgct	1800
tttctgtgac tgggtgagtac tcaaccaagt cattctgaga atagtgtatg cggcgaccga	1860
gttgctcttg cccggcgctc atacgggata ataccgcgcc acatagcaga actttaaaaag	1920
tgctcatcat tggaaaacgt tcttcggggc gaaaactctc aaggatctta ccgctgttga	1980
gatccagttc gatgtaaccc actcgtgcac ccaactgatc ttcagcatct tttactttca	2040
ccagcgtttc tgggtgagca aaaacaggaa ggcaaaatgc cgcaaaaaag ggaataaggg	2100
cgacacggaa atgttggaata ctcatactct tcttttttca atattattga agcattttatc	2160
agggttattg tctcatgagc ggatacatat ttgaatgtat ttagaaaaat aaacaaatag	2220

gggttcgcgcg cacatttccc cgaaaagtgc cacctgacgt ctaagaaacc attattatca	2280
tgacattaac ctataaaaaat aggcgtatca cgaggccctt tcgtctcgcg cgtttcggtg	2340
atgacggtga aaacctctga cacatgcagc tcccgagac ggtcacagct tgtctgtaag	2400
cggatgcccg gagcagacaa gcccgtcagg gcgcgtcagc ggggtgttggc ggggtgtcggg	2460
gctggcttaa ctatgcgga tcagagcaga ttgtactgag agtgcaccat atgcggtgtg	2520
aaataccgca cagatgcgta aggagaaaat accgcacag gaaattgtaa gcgttaatata	2580
tttggttaaaa ttcgcgttaa atttttgtta aatcagctca ttttttaacc aataggccga	2640
aatcggcaaa atcccttata aatcaaaaaga atagaccgag ataggggttga gtgttgttcc	2700
agtttggaac aagagtccac tattaaagaa cgtggactcc aacgtcaaag ggcgaaaaac	2760
cgtctatcag ggcgatggcc cactacgtga accatcacc taatcaagtt ttttggggtc	2820
gaggtgccgt aaagcactaa atcggaaccc taaagggagc ccccgattta gagcttgacg	2880
gggaaagccg gcgaacgtgg cgagaaagga agggaagaaa gcgaaaggag cgggcgctag	2940
ggcgctggca agtgtagcgg tcacgctgcg cgtaaccacc acaccgccg cgcttaatgc	3000
gccgctacag ggcgcgtcca ttcgccattc aggctgcgca actgttgggga agggcgatcg	3060
gtgcgggcct cttcgctatt acgcagctg gcgaaagggg gatgtgctgc aaggcgatta	3120
agttgggtaa cgccagggtt ttcccagtcg cgacgttgta aaacgacggc cagtgaattg	3180
taatacgact cactata	3197

<210> 3
 <211> 7249
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Bacteriophage M13mp18

<400> 3	
aatgctacta ctattagtag aattgatgcc accttttcag ctgcgcgcccc aaatgaaaat	60
atagctaaac aggttattga ccatttgcca aatgtatcta atggtcaaac taaatctact	120
cgttcgcaga attgggaatc aactgttaca tggaatgaaa ctccagaca ccgtacttta	180
gttgcataatt taaaacatgt tgagctacag caccagattc agcaattaag ctctaagcca	240
tccgcaaaaa tgacctctta tcaaaaggag caattaaagg tactctctaa tcctgacctg	300
ttggagtttg ctcccggtct ggttcgcttt gaagctcgaa ttaaaacgcg atatttgaag	360
tctttcgggc ttctcttaa tctttttgat gcaatccgct ttgcttctga ctataatagt	420
cagggtaaag acctgatttt tgatttatgg tcattctcgt tttctgaact gtttaaagca	480
tttgaggggg attcaatgaa tatttatgac gattccgcag tattggacgc tatccagtct	540
aaacatttta ctattacccc ctctggcaaa acttcttttg caaaagcctc tcgctatttt	600

ggtttttata	gtcgtctggt	aaacgagggg	tatgatagt	ttgctcttac	tatgcctcgt	660
aattcctttt	ggcgttatgt	atctgcatta	gttgaatgtg	gtattcctaa	atctcaactg	720
atgaatcttt	ctacctgtaa	taatgttggt	ccgttagttc	gttttattaa	cgtagatttt	780
tcttcccaac	gtcctgactg	gtataatgag	ccagttctta	aaatcgcata	aggtaattca	840
caatgattaa	agttgaaatt	aaaccatctc	aagcccaatt	tactactcgt	tctggtggtc	900
tcgtcagggc	aagccttatt	cactgaatga	gcagctttgt	tacgttgatt	tgggtaatga	960
atatccggtt	cttgtcaaga	ttactcttga	tgaaggtcag	ccagcctatg	cgcttgggtc	1020
gtacaccgtt	catctgtcct	ctttcaaagt	tggtcagttc	ggttccctta	tgattgaccg	1080
tctgcgcctc	gttccggcta	agtaacatgg	agcaggctgc	ggatttcgac	acaatttatc	1140
aggcgatgat	acaaatctcc	gttgtacttt	gtttcgcgct	tgggtataatc	gctgggggtc	1200
aaagatgagt	gttttagtgt	attctttcgc	ctctttcgtt	ttaggttggt	gccttcgtag	1260
tggcattacg	tattttaccc	gtttaatgga	aacttcctca	tgaaaaagtc	tttagtcctc	1320
aaagcctctg	tagccgttgc	taccctcgtt	ccgatgctgt	ctttcgcctg	tgagggtgac	1380
gatcccgcaa	aagcggcctt	taactccctg	caagcctcag	cgaccgaata	tatcggttat	1440
gcgtgggcca	tgggtgttgt	cattgtcggc	gcaactatcg	gtatcaagct	gtttaagaaa	1500
ttcacctcga	aagcaagctg	ataaaccgat	acaattaaag	gctccttttg	gagccttttt	1560
ttttggagat	tttcaacgtg	aaaaaattat	tattcgcaat	tccttttagtt	gttcctttct	1620
attctcactc	cgctgaaact	gttgaaagtt	gttttagcaaa	accccataca	gaaaattcat	1680
ttactaacgt	ctggaaagac	gacaaaactt	tagatcggtt	cgctaactat	gagggttgct	1740
tgtggaatgc	tacaggcggt	gtagtttgta	ctgggtgacga	aactcagttg	tacggtacat	1800
gggttcctat	tgggcttgc	atccctgaaa	atgagggtgg	tggctctgag	ggtggcggtt	1860
ctgagggtgg	cggttctgag	ggtggcggtt	ctaaacctcc	tgagtacggt	gatacaccta	1920
ttccgggcta	tacttatatc	aacctctcgc	acggcactta	tccgcctggt	actgagcaaa	1980
accccgctaa	tctaatacct	tctcttgagg	agtctcagcc	tcttaatact	ttcatgtttc	2040
agaataatag	gttccgaaat	aggcaggggg	cattaactgt	ttatacgggc	actgttactc	2100
aaggcactga	ccccgttaaa	acttattacc	agtacactcc	tgtatcatca	aaagccatgt	2160
atgacgctta	ctggaacggt	aaattcagag	actgcgcttt	ccattctggc	tttaatgaag	2220
atccattcgt	ttgtgaatat	caaggccaat	cgtctgacct	gcctcaacct	cctgtcaatg	2280
ctggcgggcg	ctctgggtgt	ggttctggtg	gcggctctga	gggtgggtgg	tctgagggtg	2340
gcggttctga	gggtggcggc	tctgaggggg	gcggttccgg	tgggtggctct	ggttccggtg	2400
attttgatta	tgaaaagatg	gcaaacgcta	ataagggggc	tatgaccgaa	aatgccgatg	2460
aaaacgcgct	acagtctgac	gctaaaggca	aacttgattc	tgtcgcctact	gattacgggtg	2520

ctgctatcga	tggtttcatt	ggtgacgttt	cgggccttgc	taatggtaat	ggtgctactg	2580
gtgattttgc	tggtcttaat	tcccaaattg	ctcaagtcgg	tgacggtgat	aattcacctt	2640
taatgaataa	tttccgtcaa	tatttacctt	ccctccctca	atcggttgaa	tgtcgccctt	2700
ttgtctttag	cgctggtaaa	ccatatgaat	tttctattga	ttgtgacaaa	ataaacttat	2760
tccgtgggtg	ctttgcgttt	cttttatatg	ttgccacctt	tatgtatgta	ttttctacgt	2820
ttgctaacat	actgcgtaat	aaggagtctt	aatcatgcca	gttcttttgg	gtattccgtt	2880
attattgcgt	ttcctcggtt	tccttctggt	aactttgttc	ggctatctgc	ttacttttct	2940
taaaaagggc	ttcggtgaaga	tagctattgc	tatttcattg	tttcttgctc	ttattattgg	3000
gcttaactca	attcttgtgg	gttatctctc	tgatattagc	gctcaattac	cctctgactt	3060
tgttcagggt	gttcagttaa	ttctcccgtc	taatgcgctt	ccctgttttt	atgttattct	3120
ctctgtaaag	gctgctattt	tcatttttga	cgtaaacaac	aaaatcggtt	cttattttgga	3180
ttgggataaa	taatatggct	gtttattttg	taactggcaa	attaggctct	ggaaagacgc	3240
tcgttagcgt	tggtgaagatt	caggataaaa	ttgtagctgg	gtgcaaaata	gcaactaatc	3300
ttgatttaag	gcttcaaaac	ctcccgcaag	tcgggaggtt	cgctaaaacg	cctcgcgttc	3360
ttagaatacc	ggataagcct	tctatatctg	atttgcttgc	tattgggcgc	ggtaatgatt	3420
cctacgatga	aaataaaaac	ggcttgcttg	ttctcgatga	gtgcggtact	tggtttaata	3480
cccgttcttg	gaatgataag	gaaagacagc	cgattattga	ttggtttcta	catgctcgta	3540
aattaggatg	ggatattatt	tttcttggtc	aggacttata	tattgttgat	aaacaggcgc	3600
gttctgcatt	agctgaacat	gttgtttatt	gtcgtcgtct	ggacagaatt	actttacctt	3660
ttgtcggtac	tttatattct	cttattactg	gctcgaaaat	gcctctgcct	aaattacatg	3720
ttggcgttgt	taaatatggc	gattctcaat	taagccctac	tgttgagcgt	tggctttata	3780
ctggtaagaa	tttgtataac	gcatatgata	ctaaacaggc	tttttctagt	aattatgatt	3840
ccggtgttta	ttcttattta	acgccttatt	tatcacacgg	tcggtatttc	aaaccattaa	3900
atttaggtca	gaagatgaaa	ttaactaaaa	tatatttgaa	aaagttttct	cgcgttcttt	3960
gtcttgcat	tggttttgca	tcagcattta	catatagtta	tataacccaa	cctaagccgg	4020
aggttaaaaa	ggtagtctct	cagacctatg	attttgataa	attcactatt	gactcttctc	4080
agcgtcttaa	tctaagctat	cgtatgttt	tcaaggattc	taagggaata	ttaattaata	4140
gcgacgattt	acagaagcaa	ggttattcac	tcacatatat	tgatttatgt	actgtttcca	4200
ttaaaaaagg	taattcaaat	gaaattgtta	aatgtaatta	attttgtttt	cttgatgttt	4260
gtttcatcat	cttcttttgc	tcaggtaatt	gaaatgaata	attcgctctc	gcgcgatttt	4320
gtaacttgg	attcaagca	atcaggcgaa	tccgttattg	tttctcccg	tgtaaaagg	4380
actgttactg	tatattcatc	tgacgttaaa	cctgaaaatc	tacgcaattt	ctttatttct	4440

gttttacgtg	ctaataat	ttt	tgatatgg	tt	ggttcaattc	cttccataat	tcagaagt	at	4500
aatccaaaca	atcaggatta	tattgatgaa	ttgccatcat	ctgataatca	ggaatatgat				4560
gataattccg	ctccttctgg	tggtttcttt	gttccgcaaa	atgataatgt	tactcaaact				4620
tttaaaatta	ataacgttcg	ggcaaaggat	ttaatacgag	ttgtcgaatt	gtttgtaaag				4680
tctaatactt	ctaaatcctc	aaatgtatta	tctattgacg	gctctaattct	attagttggt				4740
agtgcaccta	aagatatttt	agataacctt	cctcaattcc	tttctactgt	tgatttgcca				4800
actgaccaga	tattgattga	gggtttgata	tttgagggtc	agcaagggtga	tgcttttagat				4860
ttttcatttg	ctgctggctc	tcagcgtggc	actggtgcag	gcggtgttaa	tactgaccgc				4920
ctcacctctg	ttttatcttc	tgctgggtgg	tcgttcggta	tttttaattgg	cgatgtttta				4980
gggctatcag	ttcgcgcatt	aaagactaat	agccattcaa	aatattgtc	tgtgccacgt				5040
attctttacg	tttcagggtca	gaagggttct	atctctgttg	gccagaatgt	ccctttttatt				5100
actggctcgtg	tgactgggtga	atctgccaat	gtaaataatc	catttcagac	gattgagcgt				5160
caaaatgtag	gtatttccat	gagcgttttt	cctgttgcaa	tggtcggcgg	taatattggt				5220
ctggatatta	ccagcaaggc	cgatagtttg	agttcttcta	ctcaggcaag	tgatgtttatt				5280
actaatcaaa	gaagtattgc	tacaacgggt	aatttgcggtg	atggacagac	tcttttactc				5340
ggtggcctca	ctgattataa	aaacacttct	caagattctg	gcgtaccggt	cctgtctaaa				5400
atccctttta	tcggcctcct	gttttagctcc	cgctctgatt	ccaacgagga	aagcacgtta				5460
tacgtgctcg	tcaaagcaac	catagtacgc	gccctgtagc	ggcgcattaa	gcgcggcggg				5520
tgtggtgggt	acgcgcagcg	tgaccgctac	acttgccagc	gccctagcgc	ccgctccttt				5580
cgctttcttc	ccttcctttc	tcgccacggt	cgccggcttt	ccccgtcaag	ctctaaatcg				5640
ggggctccct	ttaggggtcc	gatttagtgc	tttacggcac	ctcgacccca	aaaaacttga				5700
tttgggtgat	ggttcacgta	gtgggccatc	gccctgatag	acggtttttc	gccctttgac				5760
gttgaggtcc	acgttcttta	atagtggact	cttggttccaa	actggaacaa	cactcaaccc				5820
tatctcgggc	tattcttttg	atttataagg	gattttgccg	atttcggaac	caccatcaaa				5880
caggattttc	gcctgctggg	gcaaaccagc	gtggaccgct	tgctgcaact	ctctcagggc				5940
caggcgggtga	agggaatca	gctgttgccc	gtctcgctgg	tgaaaagaaa	aaccaccctg				6000
gcgcccata	cgcaaaccgc	ctctccccgc	gcgttggccg	attcattaat	gcagctggca				6060
cgacagggtt	cccgactgga	aagcgggcag	tgagcgcac	gcaattaatg	tgagttagct				6120
cactcattag	gcaccccagg	ctttacactt	tatgcttccg	gctcgatatgt	tgtgtggaat				6180
tgtgagcggga	taacaatttc	acacaggaaa	cagctatgac	catgattacg	aattcgagct				6240
cggtagccgg	ggatcctcta	gagtcgacct	gcaggcatgc	aagcttggca	ctggccgctg				6300
ttttacaacg	tcgtgactgg	gaaaaccctg	gcgttaccca	acttaatcgc	cttgacgac				6360

atcccccttt	cgccagctgg	cgtaatagcg	aagaggcccg	caccgatcgc	ccttcccaac	6420
agttgcgag	cctgaatggc	gaatggcgct	ttgcctgggt	tccggcacca	gaagcgggtgc	6480
cggaaagctg	gctggagtgc	gatcttcctg	aggccgatac	ggtcgctcgc	ccctcaaact	6540
ggcagatgca	cggttacgat	gcgcccacgt	acaccaacgt	aacctatccc	attacgggtca	6600
atccgccgtt	tgttcccacg	gagaatccga	cgggttggtta	ctcgcctcaca	tttaatgttg	6660
atgaaagctg	gctacaggaa	ggccagacgc	gaattatttt	tgatggcggt	cctattgggt	6720
aaaaaatgag	ctgatttaac	aaaaatttaa	cgcgaatttt	aacaaaatat	taacgtttac	6780
aatttaata	tttgcttata	caatcttcct	gtttttgggg	cttttctgat	tatcaaccgg	6840
ggtacatatg	attgacatgc	tagttttacg	attaccgttc	atcgattctc	ttgtttgctc	6900
cagactctca	ggcaatgacc	tgatagcctt	tgtagatctc	tcaaaaatag	ctaccctctc	6960
cggcattaat	ttatcagcta	gaacgggtga	atatcatatt	gatgggtgatt	tgactgtctc	7020
cggcctttct	cacccttttg	aatctttacc	tacacattac	tcaggcattg	cattttaaatt	7080
atatgagggt	tctaaaaatt	tttatccttg	cgttgaaata	aaggcttctc	ccgcaaaagt	7140
attacagggt	cataatgttt	ttggtacaac	cgatttagct	ttatgctctg	aggctttatt	7200
gcttaatttt	gctaattcct	tgccttgcc	gtatgattta	ttggatggt		7249

<210> 4
 <211> 1016
 <212> DNA
 <213> Artificial sequence

<220>
 <223> PCR product

agcggataac	aatttcacac	aggaaacagc	tatgaccatg	attacgccaa	gctattttagg	60
tgacactata	gaatactcaa	gctatgcac	aagcttggtta	ccgagctcgg	atccactagt	120
aacggccgcc	agtgtgctgg	aattcgccct	catatgagta	aaggagaaga	acttttcact	180
ggagttgtcc	caattcttgt	tgaattagat	ggcgaatgta	atgggcaaaa	attctctgtc	240
agtggagagg	gtgaagggtga	tgcaacatac	ggaaaactta	cccttaaatt	tatttgcact	300
actgggaagc	tacctgttcc	atggccaaca	cttgtcacta	ctttcgcgta	tggtcttcaa	360
tgctttgcga	gatacccaga	tcatatgaaa	cagcatgact	ttttcaagag	tgccatgccc	420
gaagggttatg	tacaggaaag	aactatattt	tacaaagatg	acgggaacta	caagacacgt	480
gctgaagtca	agtttgaagg	tgataccctt	gttaatagaa	tcgagttaaa	aggtattgat	540
tttaaagaag	atggaaacat	tcttggaac	aaaatggaat	acaactataa	ctcacataat	600
gtatacatca	tgccagacaa	accaaagaat	ggaatcaaag	ttaacttcaa	aattagacac	660
aacattaaag	atggaagcgt	tcaattagca	gaccattatc	aacaaaatac	tccaattggc	720

gatggccctg tccttttacc agacaaccat tacctgtcca cacaatctgc cctttccaaa	780
gatcccaacg aaaagagaga tcacatgata cttcttgagt ttgtaacagc tgctgggatt	840
acacatggca tggatgaact atacaaataa ggatcctaag ggccaattct gcagatatcc	900
atcacactgg cggccgctcg agcatgcac tagagggccc aattcgccct atagtgagtc	960
gtattacaat tcaactggcg tcgttttaca acgtcgtgac tgggaaaacc ctggcg	1016

<210> 5
 <211> 2686
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Plasmid pUC18

<400> 5	
tcgcgcgttt cggatgatgac ggtgaaaacc totgacacat gcagctcccg gagacgggtca	60
cagcttgtct gtaagcggat gccgggagca gacaagcccg tcagggcgcg tcagcgggtg	120
ttggcgggtg tcggggctgg ctttaactatg cggcatcaga gcagattgta ctgagagtgc	180
accatatgcg gtgtgaaata ccgcacagat gcgtaaggag aaaataccgc atcaggcgcc	240
attcgccatt caggctgcgc aactgttggg aagggcgatc ggtgcggggc tcttcgctat	300
tacgccagct ggcgaaaggg ggatgtgctg caaggcgatt aagttgggta acgccagggt	360
tttcccagtc acgacgttgt aaaacgacgg ccagtgccaa gcttgcacgc ctgcaggtcg	420
actctagagg atccccgggt accgagctcg aattcgtaat catggtcata gctgtttcct	480
gtgtgaaatt gttatccgt cacaattcca cacaacatac gagccggaag cataaagtgt	540
aaagcctggg gtgcctaata agtgagctaa ctacattaa ttgcgttgcg ctactgccc	600
gctttccagt cgggaaacct gtcgtgccag ctgcattaat gaatcgcca acgcgcgggg	660
agaggcgggt tgcgtattgg gcgtcttcc gcttcctcgc tcaactgactc gctgcgctcg	720
gtcgttcggc tgcggcgagc ggtatcagct cactcaaagg cggtaatatc gttatccaca	780
gaatcagggg ataacgcagg aaagaacatg tgagcaaaaagg ccagcaaaa ggccaggaac	840
cgtaaaaagg ccgcgttgct ggcgtttttc cataggctcc gccccctga cgagcatcac	900
aaaaatcgac gctcaagtca gaggtggcga aaccgcagag gactataaag ataccaggcg	960
tttccccctg gaagctccct cgtgcgctct cctgttccga cctgcgcgt taccggatac	1020
ctgtccgctt ttctcccttc ggggaagcgtg gcgctttctc aatgctcacg ctgtaggtat	1080
ctcagttcgg tgtaggtcgt tcgctccaag ctgggctgtg tgcacgaacc cccggttcag	1140
cccgaccgct gcgccttata cggtaactat cgtcttgagt ccaaccgggt aagacacgac	1200
ttatcgccac tggcagcagc cactggtaac aggattagca gagcgaggta tgtaggcggt	1260
gctacagagt tcttgaagtg gtggcctaac tacggctaca ctagaaggac agtatttggt	1320

atctgcgctc	tgctgaagcc	agttaccttc	ggaaaaagag	ttggtagctc	ttgatccggc	1380
aaacaaacca	ccgctggtag	cggtgggtttt	tttgtttgca	agcagcagat	tacgcgcaga	1440
aaaaaaggat	ctcaagaaga	tcctttgatc	ttttctacgg	ggtctgacgc	tcagtggaac	1500
gaaaactcac	gttaagggat	tttggtcatg	agattatcaa	aaaggatctt	cacctagatc	1560
cttttaatt	aaaaatgaag	ttttaaatca	atctaaagta	tatatgagta	aacttggtct	1620
gacagttacc	aatgcttaat	cagtgaggca	cctatctcag	cgatctgtct	atttcgttca	1680
tccatagttg	cctgactccc	cgctcgttag	ataactacga	tacgggaggg	cttaccatct	1740
ggccccagtg	ctgcaatgat	accgcgagac	ccacgctcac	cggtccaga	tttatcagca	1800
ataaaccagc	cagccggaag	ggccgagcgc	agaagtggtc	ctgcaacttt	atccgcctcc	1860
atccagtcta	ttaattgttg	ccgggaagct	agagtaagta	gttcgccagt	taatagtttg	1920
cgcaacgttg	ttgccattgc	tacaggcatc	gtggtgtcac	gctcgtcgtt	tggtatggct	1980
tcattcagct	ccggttccca	acgatcaagg	cgagttacat	gatcccccat	gttgtgcaaa	2040
aaagcggtta	gctccttcgg	tcctccgac	gttgtcagaa	gtaagttggc	cgcagtgtta	2100
tcactcatgg	ttatggcagc	actgcataat	tctcttactg	tcatgccatc	cgtaagatgc	2160
ttttctgtga	ctggtgagta	ctcaaccaag	tcattctgag	aatagtgtat	gcggcgaccg	2220
agttgctctt	gcccggcgtc	aatacgggat	aataccgcgc	cacatagcag	aactttaaaa	2280
gtgctcatca	ttggaaaacg	ttcttcgggg	cgaaaactct	caaggatctt	accgctgttg	2340
agatccagtt	cgatgtaacc	cactcgtgca	cccaactgat	cttcagcatc	ttttactttc	2400
accagcgttt	ctgggtgagc	aaaaacagga	aggcaaatg	ccgcaaaaaa	gggaataagg	2460
gcgacacgga	aatgttgaat	actcatactc	ttcctttttc	aatattattg	aagcatttat	2520
cagggttatt	gtctcatgag	cggatacata	tttgaatgta	tttagaaaaa	taaacaaata	2580
ggggttccgc	gcacatttcc	ccgaaaagtg	ccacctgacg	tctaagaaac	cattattatc	2640
atgacattaa	cctataaaaa	taggcgtatc	acgaggccct	ttcgtc		2686

<210> 6
 <211> 17
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Synthetic primer

<400> 6
 actggccgtc gttttac

17

<210> 7
 <211> 16
 <212> DNA
 <213> Artificial sequence

<220>
<223> Synthetic primer

<400> 7
aacagctatg accatg

16

<210> 8
<211> 24
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer

<400> 8
cgccagggtt ttcccagtca cgac

24

<210> 9
<211> 24
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer

<400> 9
agcggataac aatttcacac agga

24

<210> 10
<211> 16
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer

<400> 10
gtaaaacgac ggccag

16

<210> 11
<211> 19
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic primer

<400> 11
atcgcggttt gcgtattgg

19